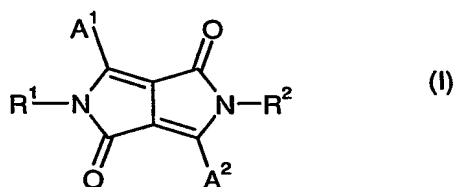
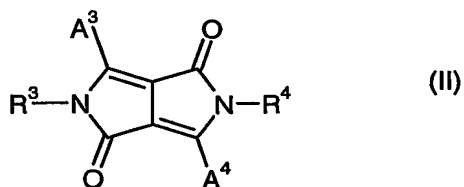


Claims

1. A composition comprising a guest chromophore and a host chromophore, wherein the absorption spectrum of the guest chromophore overlaps with the fluorescence emission spectrum of the host chromophore, wherein the host chromophore is a diketopyrrolopyrrole having a photoluminescence emission peak at 500 to 720 nm, preferably 500 to 600 nm, most preferred 520 to 580 nm and wherein the guest chromophore is a diketopyrrolopyrrole having an absorption peak at 500 to 720 nm, preferably 500 to 600 nm, most preferred 520 to 580 nm.
2. A composition according to claim 1, wherein the host chromophore is a diketopyrrolopyrrole ("DPP") represented by formula I



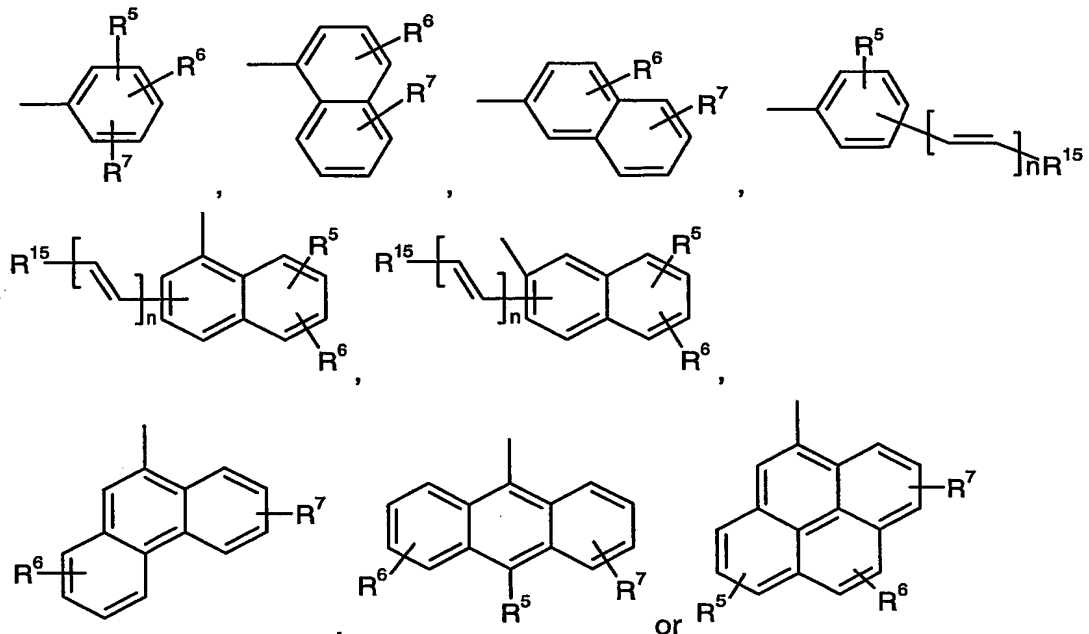
and the guest chromophore is a DPP represented by formula II



wherein R^1 , R^2 , R^3 and R^4 independently from each other stand for C_1 - C_{25} -alkyl, which can be substituted by fluorine, chlorine or bromine, C_5 - C_{12} -cycloalkyl or C_5 - C_{12} -cycloalkyl which can be condensed one or two times by phenyl which can be substituted one to three times with C_1 - C_4 -alkyl, halogen, nitro or cyano, silyl, A^5 or $-CR^{11}R^{12}-(CH_2)_m-A^5$, wherein R^{11} and R^{12} independently from each other stand for hydrogen, fluorine, chlorine, bromine, cyano or C_1 - C_4 -alkyl, which can be substituted by fluorine, chlorine or bromine, or phenyl which can be substituted one to three times with C_1 - C_3 -alkyl, A^5 stands for phenyl or 1- or 2-naphthyl which can be substituted one to three times with C_1 - C_8 -alkyl, C_1 - C_8 -alkoxy, halogen, nitro, cyano, phenyl, which can be substituted with C_1 - C_8 -alkyl or C_1 - C_8 -alkoxy one to three times, $-NR^{13}R^{14}$ wherein R^{13} and R^{14} represent hydrogen, C_1 - C_{25} -alkyl, C_5 - C_{12} -cycloalkyl or C_6 - C_{24} -aryl, in particular phenyl or 1- or 2-naphthyl which can be substituted one to three times with C_1 - C_8 -alkyl,

C₁-C₈alkoxy, halogen or cyano, or phenyl, which can be substituted with C₁-C₈alkyl or C₁-C₈alkoxy one to three times, and m stands for 0, 1, 2, 3 or 4,

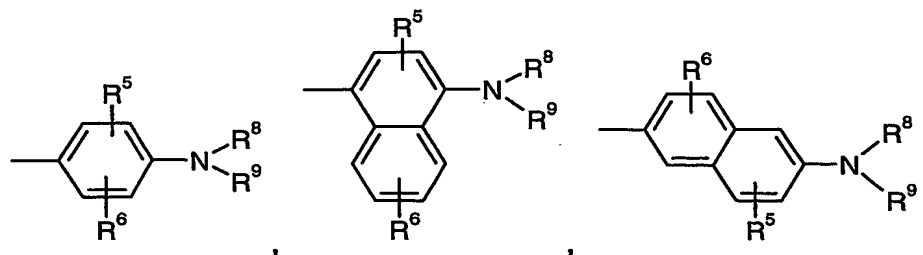
A¹ and A² independently from each other stand for



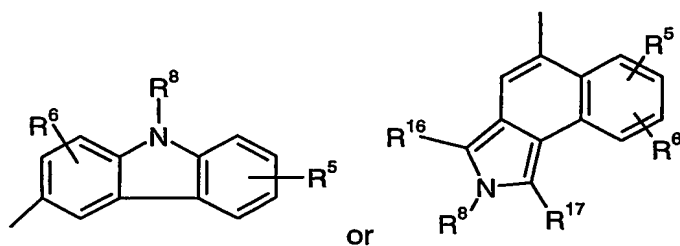
wherein

R⁵, R⁶, R⁷ independently from each other stands for hydrogen, C₁-C₂₅-alkyl, C₁-C₂₅-alkoxy, -CR¹¹R¹²-(CH₂)_m-A⁵, cyano, halogen, -OR¹⁰, -S(O)_pR¹³, or phenyl, which can be substituted one to three times with C₁-C₈alkyl or C₁-C₈alkoxy, wherein R¹⁰ stands for C₆-C₂₄-aryl, or a saturated or unsaturated heterocyclic radical comprising five to seven ring atoms, wherein the ring consists of carbon atoms and one to three hetero atoms selected from the group consisting of nitrogen, oxygen and sulfur, R¹³ stands for C₁-C₂₅-alkyl, C₅-C₁₂-cycloalkyl, -CR¹¹R¹²-(CH₂)_m-Ph, R¹⁵ stands for C₆-C₂₄-aryl, p stands for 0, 1, 2 or 3 and n stands for 0, 1, 2, 3 or 4,

A³ and A⁴ independently from each other stand for

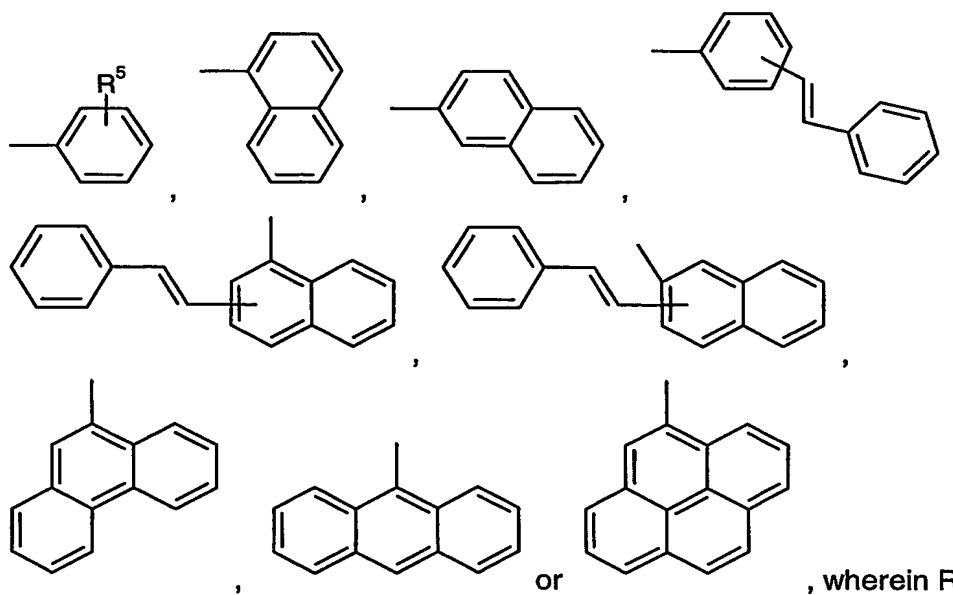


47



wherein R^8 and R^9 independently from each other stand for hydrogen, C_1 - C_{25} -alkyl, C_5 - C_{12} -cycloalkyl, $-CR^{11}R^{12}-(CH_2)_m-A^5$, C_6 - C_{24} -aryl, in particular A^1 , or a saturated or unsaturated heterocyclic radical comprising five to seven ring atoms, wherein the ring consists of carbon atoms and one to three hetero atoms selected from the group consisting of nitrogen, oxygen and sulfur, and R^{16} and R^{17} are independently of each other hydrogen or C_6 - C_{24} aryl.

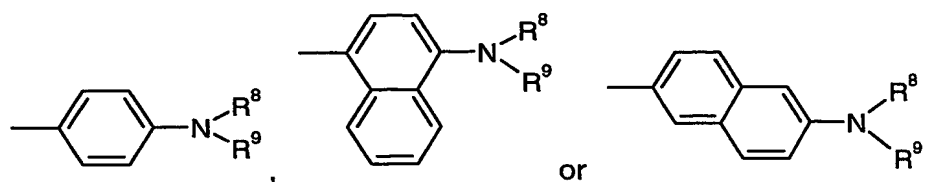
3. Composition according to claim 2, wherein A^1 and A^2 independently from each other stand for



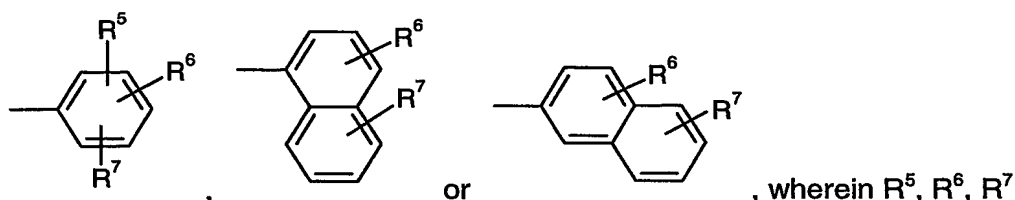
alkyl.

4. Composition according to claim 2 or 3, wherein A^3 and A^4 independently from each other stand for

48

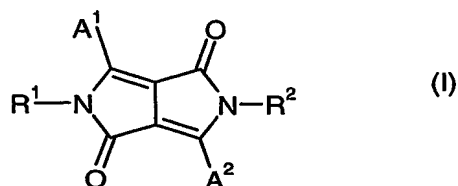


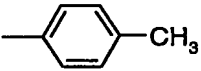
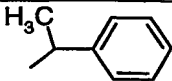
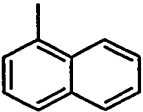
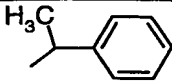
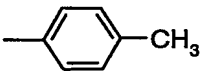
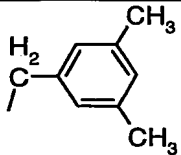
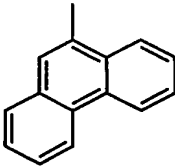
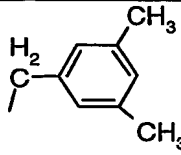
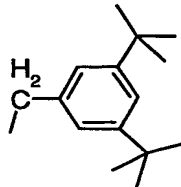
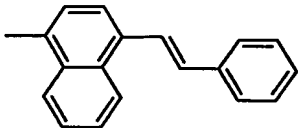
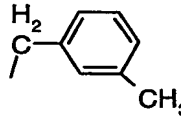
wherein R^8 and R^9 independently from each other stand for

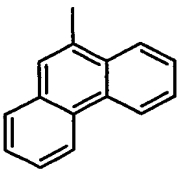
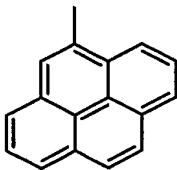
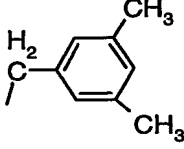
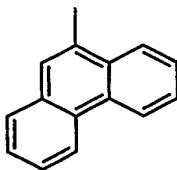
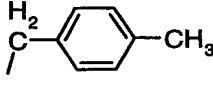
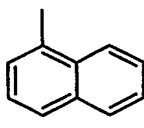
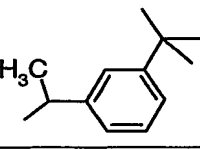
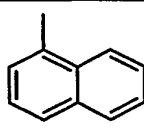
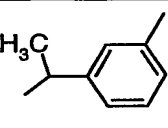
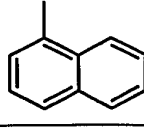
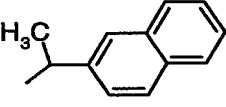
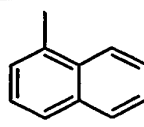
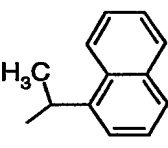
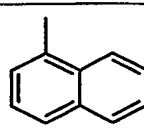
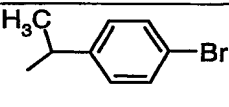
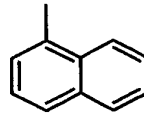
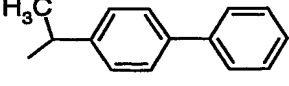


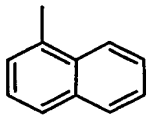
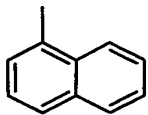
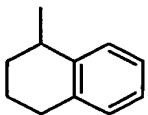
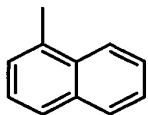
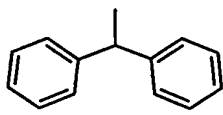
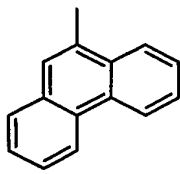
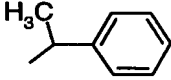
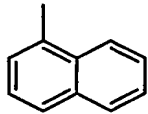
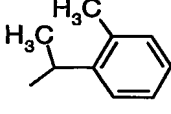
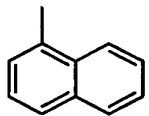
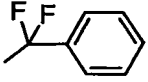
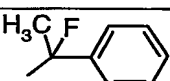
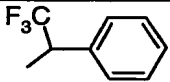
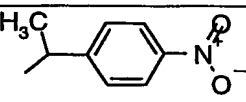
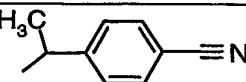
independently from each other stands for hydrogen, C_1 - C_8 -alkyl or C_1 - C_8 -alkoxy.

5. Composition according to any of claims 2 to 4, wherein R^1 , R^2 , R^3 and R^4 independently from each other stand for C_1 - C_8 alkyl, C_5 - C_{12} -cycloalkyl, which can be substituted one to three times with C_1 - C_8 alkyl and/or C_1 - C_8 alkoxy, phenyl or 1- or 2-naphthyl which can be substituted one to three times with C_1 - C_8 alkyl and/or C_1 - C_8 alkoxy, or $-CR^{11}R^{12}-(CH_2)_m-A^5$ wherein R^{11} and R^{12} stand for hydrogen, A^5 stands for phenyl or 1- or 2-naphthyl, which can be substituted one to three times with C_1 - C_8 alkyl and/or C_1 - C_8 alkoxy, and m stands for 0 or 1.
6. Composition according to any of claims 2, 3 or 5, wherein the compound of the formula I is selected from the following compounds A-1 to A-29:

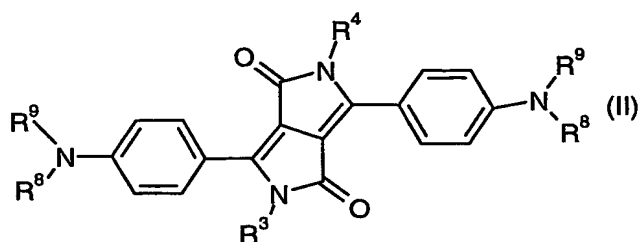


Compound	$A^1 = A^2$	$R^1 = R^2$
A-1		
A-2		
A-3		
A-4		
A-5	"	
A-6	"	$-(CH_2)_3CH_3$
A-7		

Compound	A ¹ = A ²	R ¹ = R ²
A-8		-Si(CH ₃) ₃
A-9		
A-10		
A-11		
A-12		
A-13		
A-14		
A-15		
A-16		

Compound	A ¹ = A ²	R ¹ = R ²
A-17		-CH(CH ₃) ₂
A-18		
A-19		
A-20		
A-21		
A-22		
A-23	"	
A-24	"	-CF ₃
A-25	"	-CHF ₂
A-26	"	-CH ₂ F
A-27	"	
A-28	"	
A-29	"	

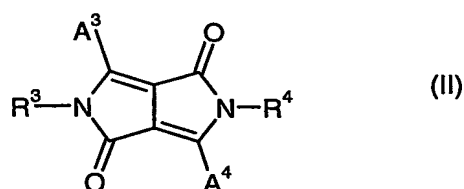
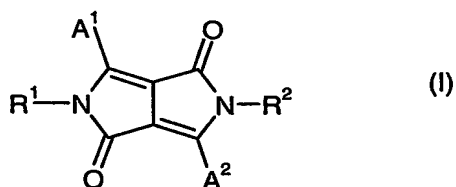
7. Composition according to any of claims 2, 4 or 5, wherein the compound of the formula II is selected from the following compounds B-1 to B-9:



Compound	R ³ = R ⁴	R ⁸	R ⁹
B-1			
B-2	-(CH ₂) ₃ CH ₃		
B-3			
B-4			
B-5		"	"
B-6	"		
B-7			
B-8			
B-9			

8. An electroluminescent device comprising the composition according to any of claims 1 to 7.

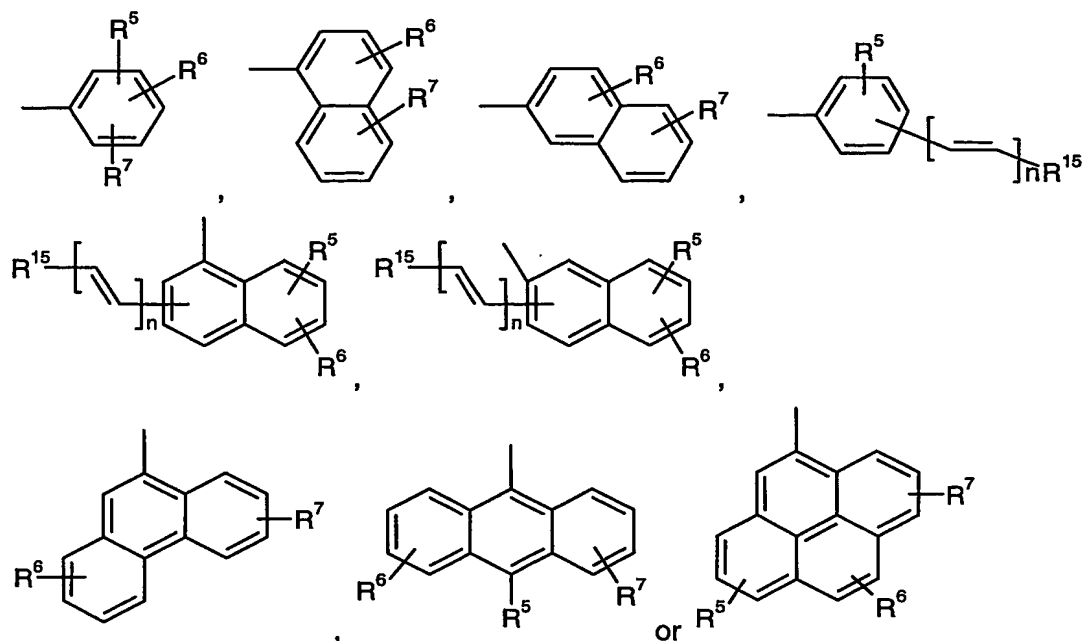
9. An electroluminescent device according to claim 8, comprising in this order
 - (a) an anode, (b) a hole transporting layer, (c) a light-emitting layer, (d) optionally an electron transporting layer and (e) a cathode.
10. A composition comprising
 - (a) 0.01 to 50% by weight, based on the total weight of the colored high molecular weight organic material, of the composition according to any of claims 1 to 7, and
 - (b) 99.99 to 50% by weight, based on the total weight of the colored high molecular weight organic material, of a high molecular organic material.
11. Use of the composition according to any of claims 1 to 6 for coloring a high molecular weight organic material and in color changing media.
12. A diketopyrrolopyrrole ("DPP") represented by formula I or II



wherein R^1 , R^2 , R^3 and R^4 independently from each other stand for C_1 - C_{25} -alkyl, which can be substituted by fluorine, chlorine or bromine, C_5 - C_{12} -cycloalkyl or C_5 - C_{12} -cycloalkyl which can be condensed one or two times by phenyl which can be substituted one to three times with C_1 - C_4 -alkyl, halogen, nitro or cyano, silyl, A^5 or - $CR^{11}R^{12}-(CH_2)_m-A^5$, wherein R^{11} and R^{12} independently from each other stand for hydrogen, fluorine, chlorine, bromine, cyano or C_1 - C_4 alkyl, which can be substituted by fluorine, chlorine or bromine, or phenyl which can be substituted one to three times with C_1 - C_3 alkyl, A^5 stands for phenyl or 1- or 2-naphthyl which can be substituted one to three times with C_1 - C_8 alkyl, C_1 - C_8 alkoxy, halogen, nitro, cyano, phenyl, which can be substituted with C_1 - C_8 alkyl or C_1 - C_8 alkoxy one to three times, - $NR^{13}R^{14}$ wherein R^{13} and R^{14} represent hydrogen, C_1 - C_{25} -alkyl, C_5 - C_{12} -cycloalkyl or C_6 - C_{24} -aryl, in particular

phenyl or 1- or 2-naphthyl which can be substituted one to three times with C_1 - C_8 alkyl, C_1 - C_8 alkoxy, halogen or cyano, or phenyl, which can be substituted with C_1 - C_8 alkyl or C_1 - C_8 alkoxy one to three times, and m stands for 0, 1, 2, 3 or 4,

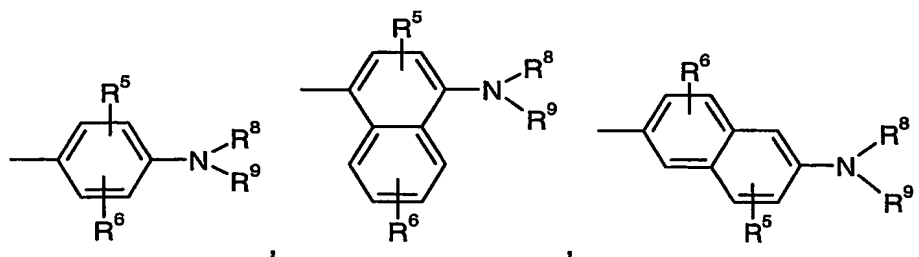
A^1 and A^2 independently from each other stand for



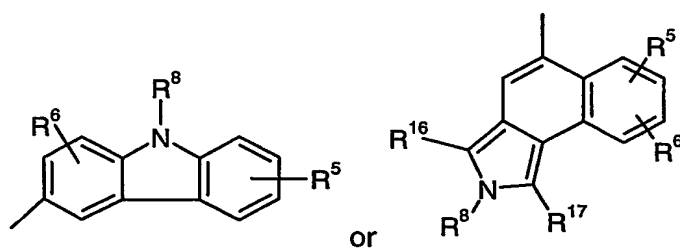
wherein

R^5 , R^6 , R^7 independently from each other stands for hydrogen, C_1 - C_{25} -alkyl, C_1 - C_{25} -alkoxy, $-CR^{11}R^{12}-(CH_2)_m-A^5$, cyano, halogen, $-OR^{10}$, $-S(O)_pR^{13}$, or phenyl, which can be substituted one to three times with C_1 - C_8 alkyl or C_1 - C_8 alkoxy, wherein R^{10} stands for C_6 - C_{24} -aryl, or a saturated or unsaturated heterocyclic radical comprising five to seven ring atoms, wherein the ring consists of carbon atoms and one to three hetero atoms selected from the group consisting of nitrogen, oxygen and sulfur, R^{13} stands for C_1 - C_{25} -alkyl, C_5 - C_{12} -cycloalkyl, $-CR^{11}R^{12}-(CH_2)_m-Ph$, R^{15} stands for C_6 - C_{24} -aryl, p stands for 0, 1, 2 or 3 and n stands for 0, 1, 2, 3 or 4,

A^3 and A^4 independently from each other stand for



55



wherein R^8 and R^9 independently from each other stand for hydrogen, C_1 - C_{25} -alkyl, C_5 - C_{12} -cycloalkyl, $-CR^{11}R^{12}-(CH_2)_m-A^5$, C_6 - C_{24} -aryl, in particular A^1 , or a saturated or unsaturated heterocyclic radical comprising five to seven ring atoms, wherein the ring consists of carbon atoms and one to three hetero atoms selected from the group consisting of nitrogen, oxygen and sulfur, and R^{16} and R^{17} are independently of each other hydrogen or C_6 - C_{24} aryl.